sected wall. The Doppler method of examination is used to determine stenosis of the aorta and other vessels, even into the pedal arteries, and is more reliable than palpation.

With the advent of computerized tomography, it is possible that some uses of ultrasound will be of less value, especially in the thorax and head. However, it must be remembered that ultrasound has no known contraindications and is nonionizing.

Computerized tomography makes use of irradiation that may be injurious if used extensively. In testing animals with significant exposure to ultrasound, tissue damage to neural, cutaneous or other systems has not been found. Heat is produced by ultrasound when intensity levels are greater than 1 watt of electrical energy per square centimeter of crystal surface. Diagnostic B mode energy levels range between 0.04 and 0.004 watts per square centimeter of crystal surface.

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Treatment of Croup

CROUP, A COMMON SYNDROME of respiratory stridor, cough and hoarseness due to varying degrees of laryngeal obstruction, frequently presents a therapeutic challenge to family physicians. The mainstays of treatment for years have included adequate hydration, humidification, careful sedation when needed, and use of oxygen or even tracheostomy in severe cases of laryngeal obstruction. Antibiotics and steroids have no value in this viral disease. The use of intermittent positive pressure breathing (IPPB) with nebulized racemic epinephrine has recently become accepted as an important adjunct to therapy which can provide dramatic symptomatic relief in the acute case and potentially decrease the need for admission to hospital and tracheostomy if its limitations are recognized.

At first this method was used in the most severe cases of croup, but is now also found useful in the mild or moderately severe case. The method involves the use of a positive pressure respirator with a face mask for 15 minutes using a nebulized solution of 2.5 percent racemic epinephrine diluted 1:8 with water. If the response is not satisfactory or if symptoms recur, additional treatments can be given. This treatment is well suited to use in emergency rooms, but must be followed by an adequate period of observation before a patient is sent home.

While all reported studies have shown the acute beneficial results of IPPB with nebulized racemic epinephrine in the treatment of croup, it is still unclear whether the important element in this treatment is the IPPB or the use of nebulized racemic epinephrine. Some reports have shown there to be a decrease in the incidence of both hospital admissions and tracheostomy through use of this treatment, while other studies have not reported such positive outcomes.

Although IPPB with nebulized racemic epinephrine can be recommended as an important addition to the treatment of croup, two precautions must be heeded: (1) the diagnosis must be accurate because IPPB is not effective in epiglottitis and may delay appropriate urgent treatment and (2) an adequate period of observation must follow the use of IPPB because symptoms often recur within two hours even when the initial response to treatment has been satisfactory.

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New Hope for Patients With Psoriasis

THERE IS NEW HOPE for patients suffering from psoriasis. Although the cause of psoriasis is not known, much has been learned about the pathophysiology of the disease and the response to chemical and physical methods of therapy. Psoriasis may be present as a cosmetic nuisance or a disabling, crippling, destructive, socially ruinous disease—or any degree of severity between these two extremes.

Recognition that the underlying process that results in the thickened plaques of skin associated with psoriasis is the result of increased rate of replication of the epidermal cells led to a recent

rationale of therapy. The turnover time in the production of normal epidermis is 28 days. The turnover time in psoriasis is three to four days. This accounts for the dramatic growth and thickening of the skin.

Methyltrexate, an antimetabolic dioxyribonucleic acid (DNA) inhibitor used effectively in the treatment of choriocarcinoma was found to be very effective in the treatment of psoriasis. This is an exceedingly potent and dangerous chemotherapeutic agent, the use of which can be justified only in severe cases of generalized psoriasis. Its use should be limited to oncologists or dermatologists familiar with the agent and capable of closely monitoring changes in the liver, bone marrow and kidneys. The benefit-to-risk ratio is unfavorable except in very unusual cases.

A new method of treatment used by several investigators appears very promising. Historically it was noted that in travelers afflicted with psoriasis there was an especially beneficial effect when they visited the region of the Dead Sea. It was reasoned that the good results may have accrued from the type of light penetrating the extra thickness of the atmosphere. Indeed, there was found to be a longer wave length in the ultraviolet spectrum, the shorter wave length having been filtered out. It was observed that certain chemicals (psoralens) used in the treatment of viteligo in India and Egypt as long ago as 2,000 years, also had a beneficial effect on psoriasis in some instances.

The combined use of the longwave (UV-A 320 to 400 nm) light and methoxsalen (8 methoxypsoralen) or trioxsalen (4, 5′, 8 trimethyl-psoralen) produced remission of the psoriatic lesions. Methoxsalen, the more commonly used psoralen increases photosensitivity in the skin and increased pigmentation in the presence of ultraviolet light. The photo-excited psoralen molecules bind to the DNA molecule in a manner to inhibit its replication. This effect is most pronounced in the presence of longwave UV-A (320 to 400 nm). The shortwave UV-B (275 to 320 nm) is relatively ineffective. The most effective use of methoxsalen is by oral administration. Topical use is unsatisfactory because of difficulty in controlling dosage. Severe cases of photosensitivity often result in blistering and irregular disfiguring hyperpigmentation of the skin. Topically and intraperitoneally, methoxsalen and longwave or conventional ultraviolet light have produced squamous cell carcinoma in animal studies.

Methoxsalen administered orally has not been shown to potentiate carcinogenesis or hepatotoxicity in human subjects in a study extending over 20 years. Methoxsalen, therefore, appears to be a safe drug, which, if administration is followed by exposure to longwave UV-A (320 to 400 nm), is effective in causing the remisison of psoriatic lesions. Careful dosage and careful exposure of measured amounts of irradiation are essential to the success of this method of treatment.

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Nonsteroid Anti-inflammatory Agent for Treatment of Rheumatoid Arthritis

AMONG A NUMBER of new agents recently placed on the market for treatment of arthritis, tolmetin sodium (Tolectin®) possesses anti-inflammatory analgesic and antipyretic activity. While the exact mechanism of action is unknown, this new nonsteroidal anti-inflammatory drug is useful as an adjunct to the treatment of rheumatoid arthritis, particularly in patients who are sensitive to aspirin. This medication comes in a dosage strength of 200 mg and the recommended dose is 1,200 to 2,000 mg a day in divided doses taken with food to avoid gastric irritation that can be a problem with this drug. Double-blind cross-over studies have been made and findings indicate that in recommended doses tolmetin is as effective as aspirin and indomethacin. Tolmetin sodium is indicated for the relief of signs and symptoms of rheumatoid arthritis in acute flare-ups and also in long-term management of the chronic disease.

Guidelines for gauging improvement with use of this medication have been a reduction in swelling and pain, a reduction of the number of involved joints, a reduction of the duration of morning stiffness, or a decrease in disease activity and improved functional capacity. While this drug has been noted to be equal to indomethacin and aspirin in controlling disease activity, the frequency of gastrointestinal adverse effects and tinnitus was definitely less than those of patients treated with aspirin, and the incidence of central nervous system adverse effects was less than with the indomethacin treated patients.